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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
ZIMMERMAN, GLENN	

ART UNIT	PAPER NUMBER
2879	

DATE MAILED: 06/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/719,214	MORADI ET AL.	
	Examiner	Art Unit	
	Glenn Zimmerman	2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *20 November 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *1103*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: 205, 329 and 425. A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 6, 9, 11-15 and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Itoh et al. U.S. Patent 5,793,154.

Regarding claim 1, Itoh et al. discloses A field emitter display device **(col. 1 lines 7-13)**, comprising: at least one emitter **(emitter Fig. 2 ref. 18)** having a coating **(TiN cover layer ref. 20)** that releases electrons at a predetermined energy level, the coating acts in the presence of outgassing to inhibit degradation of the at least one emitter. When you have the structure, you have the function. Also the particular outgasses used with the emitter/coating is intended use language.

Regarding claim 2, Itoh et al. discloses the field emitter display device of claim 1, wherein the coating decomposes at least one matter in the outgassing to a non-reactive state to inhibit degradation of the at least one emitter. The examiner notes that Titanium Nitride does the decomposing. This claim's decomposing of outgassing is intended use. The examiner notes that organic matter is inherently found in vacuum packaging of electronic devices from internal components.

Regarding claim 3, Itoh et al. discloses the field emitter display device of claim 2, wherein the outgassing includes organic matters. This claims outgassing of organic matters is intended use. The examiner notes that organic matter is inherently found in vacuum packaging of electronic devices from internal components.

Regarding claim 4, Itoh et al. discloses the field emitter display device of claim 3, wherein the coating is titanium-nitride **(TiN cover layer ref. 20)**.

Regarding claim 6, Itoh et al. discloses the field emitter display device of claim 3, wherein the coating is a metal nitride **(TiN cover layer ref. 20)**.

Regarding claim 9, Itoh et al. discloses the field emitter display device of claim 3, wherein the coating covers the surface of the at least one emitter **(TiN cover layer Fig. 2 ref. 20; emitter Fig. 2 ref. 18)**.

Regarding claim 11, Itoh et al. discloses a field emitter display device **(col. 1 lines 7-13)**, comprising: at least one emitter **(emitter Fig. 2 ref. 18)** having a coating **(TiN cover layer ref. 20)** that releases electrons at a predetermined energy level, the coating decomposes at least one matter in the presence of outgassing to inhibit degradation of the at least one emitter, wherein the outgassing includes organic

matters. The examiner notes that Titanium Nitride does the decomposing. This claim's decomposing of outgassing is intended use. The examiner notes that organic matter is inherently found in vacuum packaging of electronic devices from internal components. When you have the structure, you have the function. Also the particular outgasses used with the emitter/coating is intended use language.

Regarding claim 12, Itoh et al. discloses a field emitter display device, comprising: at least one emitter **(emitter Fig. 2 ref. 18)** having a coating **(TiN cover layer ref. 20)** that releases electrons at a predetermined energy level, the coating is stable in the presence of outgassing to inhibit degradation of the at least one emitter. The examiner notes that Titanium Nitride is stable in the presence of outgassing to inhibit degradation. This claim's inhibit degradation of the at least one emitter of outgassing is intended use. The examiner notes that organic matter is inherently found in vacuum packaging of electronic devices from internal components. When you have the structure, you have the function. Also the particular outgasses used with the emitter/coating is intended use language.

Regarding claim 13, Itoh et al. discloses a field emitter display device **(col. 1 lines 7-13)**, comprising: at least one emitter **(emitter Fig. 2 ref. 18)** having a coating **(TiN cover layer ref. 20)** that releases electrons at a predetermined energy level, the coating neutralizes at least one matter in the presence of outgassing to inhibit degradation of the at least one emitter. The examiner notes that Titanium Nitride neutralizes at least one matter in the presence of outgassing to inhibit degradation of the at least one emitter. This claim's limitation neutralizes at least one matter in the

presence of outgassing to inhibit degradation of the at least one emitter is intended use. The titanium nitride coating will provide the function. The examiner notes that organic matter and outgassing are inherently found in vacuum packaging of electronic devices from internal components. When you have the structure, you have the function. Also the particular outgasses used with the emitter/coating is intended use language.

Regarding claim 14, Itoh et al. discloses a field emitter display device **(col. 1 lines 7-13)**, comprising: at least one emitter **(emitter Fig. 2 ref. 18)** having a coating **(TiN cover layer ref. 20)** that releases electrons at a predetermined energy level, the coating brings about heterogeneous catalysis in the presence of outgassing to inhibit degradation of the at least one emitter. The examiner notes that Titanium Nitride neutralizes brings about heterogeneous catalysis in the presence of outgassing to inhibit degradation of the at least one emitter. This claim's limitation brings about heterogeneous catalysis in the presence of outgassing to inhibit degradation of the at least one emitter. The titanium nitride coating will provide the function. The examiner notes that organic matter and outgassing are inherently found in vacuum packaging of electronic devices from internal components. When you have the structure, you have the function. Also the particular outgasses used with the emitter/coating is intended use language.

Regarding claim 15, Itoh et al. discloses a field emitter display device **(col. 1 lines 7-13)**, comprising: at least one emitter **(emitter Fig. 2 ref. 18)** having a coating **(TiN cover lay r ref. 20)** that releases electrons at a predetermined energy level, the coating acts in the presence of the outgassing to inhibit degradation of the at least one

emitter; and a light-emitting target that radiates when the released electrons strike the light-emitting target. When you have the structure, you have the function. Also the particular outgasses used with the emitter/coating is intended use language.

Regarding claim 25, Itoh et al. discloses a field emitter display device **(col. 1 lines 7-13)**, comprising: at least one emitter **(emitter Fig. 2 ref. 18)** having a coating **(TiN cover layer ref. 20)** that releases electrons at a predetermined energy level, the coating acts in the presence of outgassing to inhibit degradation of the at least one emitter, wherein the coating covers the surface of the emitter **(TiN cover layer Fig. 2 ref. 20; emitter Fig. 2 ref. 18)**. The examiner notes that Titanium Nitride does inhibit degradation. This claim's decomposing of outgassing is intended use. The examiner notes that organic matter is inherently found in vacuum packaging of electronic devices from internal components. When you have the structure, you have the function. Also the particular outgasses used with the emitter/coating is intended use language.

Claims 1, 7, 10 and 26 are rejected under 35 U.S.C. 102(b) as being anticipated by Debe U.S. Patent 5,726,524.

Regarding claim 1, Itoh et al. discloses A field emitter display device **(col. 1 lines 7-13)**, comprising: at least one emitter **(col. 14 lines 24-37)** having a coating **(col. 14 lines 24-37)** that releases electrons at a predetermined energy level, the coating acts in the presence of outgassing to inhibit degradation of the at least one emitter. When you have the structure, you have the function. Also the particular outgasses used with the emitter/coating is intended use language.

Regarding claim 7, Debe discloses a field emitter display device **(col. 1 lines 5-10)**, comprising: at least one emitter having a platinum coating that releases electrons at a predetermined energy level **(col. 14 lines 24-37)**, the platinum coating decomposes at least one matter in the presence of outgassing to inhibit degradation of the at least one emitter, the outgassing including organic matters. The examiner notes platinum inhibits the degradation. This claim's limitation that the coating decomposes at least one matter in the presence of outgassing to inhibit degradation of the at least one emitter is intended use and is also functionally satisfied by the platinum coating. The examiner notes that outgassing is inherently found in vacuum packaging of electronic devices from internal components.

Regarding claim 10, Debe discloses the field emitter display device of claim 1, wherein the coating is embedded in the surface of the at least one emitter **(col. 13 lines 66-67 and col. 14 lines 1-3)**.

Regarding claim 26, Debe discloses a field emitter display device **(col. 1 lines 5-10)**, comprising: at least one emitter having a coating that releases electrons at a predetermined energy level **(col. 14 lines 24-37)**, the coating acts in the presence of outgassing to inhibit degradation of the at least one emitter, wherein the coating is embedded in the surface of the emitter **(col. 13 lines 66-67 and col. 14 lines 1-3)**. The examiner notes that etching has occurred to the microstructure elements before deposition of the coating which matches with the instant specification and this results in embedding. When you have the structure, you have the function. Also the particular outgasses used with the emitter/coating is intended use language.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Itoh et al. U.S. Patent 5,793,154 in view of Takemura U.S. Patent 5,666,020.

Regarding claim 5, Itoh et al. teaches all the limitations of claim 5, but fails to teach wherein the coating is a silicide compound. Takemura in the analogous art teaches wherein the coating is a silicide compound **(col. 5 lines 22-25; titanium silicide or platinum silicide)**. Additionally, Takemura teaches incorporation of such a compound to improve the reduction in the value of the work function and the improvement of the discharge property of the electron gun **(col. 5 lines 28-30)**.

Consequently it would have been obvious to a person having ordinary skill in the art at the time the invention was made to use a silicide compound in the coating of Itoh et al., since such a modification would improve the reduction in the value of the work function and the improvement of the discharge property of the electron gun as taught by Takemura.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takemura U.S. Patent 5,666,020 in view of Itoh et al. U.S. Patent 5,793,154.

Regarding claim 8, Takemura teaches at least one emitter **(emitter ref. 20)** having a platinum silicide coating that releases electrons at a predetermined energy level **(col. 5 lines 21-25)**, the platinum silicide coating decomposes at least one matter in the presence of outgassing to inhibit degradation of the at least one emitter, the outgassing including organic matters, but fails to teach a Field Emitter display. Itoh et al. in the analogous art teaches a field emitter display **(col. 1 lines 7-12;Fig. 1)**. Additionally, Itoh et al. teaches incorporation of such a field element emission display to improve the usefulness of field emission elements **(col. 1 lines 9-11)**.

Consequently it would have been obvious to a person having ordinary skill in the art at the time the invention was made to use a field emitter display in the field emission element of Takemura, since such a modification would improve the usefulness of field emitter elements as taught by Itoh et al.

The examiner notes that platinum silicide does this decomposing. This claim's decomposing of outgassing is intended use. The examiner notes that organic matter is inherently found in vacuum packaging of electronic devices from internal components. When you have the structure, you have the function. The particular outgasses used with the emitter/coating is intended use language.

Claims 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Itoh et al. U.S. Patent 5,793,154 in view of Tjaden et al. U.S. Patent 5,770, 919.

Regarding claim 16, Itoh et al. teaches all the limitations of the claim, but fails to teach wherein the light-emitting target is coated with luminescent matter. Tjaden in the analogous art teaches wherein the light-emitting target is coated with luminescent matter **(col. 2 lines 43-46)**. Additionally, Tjaden et al. teaches incorporation of such a luminescent matter to improve light-emission and pixel creation **(col. 2 lines 43-50)**.

Consequently it would have been obvious to a person having ordinary skill in the art at the time the invention was made to use a luminescent matter coating in the field emission display of Itoh et al., since such a modification would improve light-emission and pixel creation as taught by Tjaden et al.

The examiner notes that in the art of field emission displays there is no difference between luminescent matter and phosphorescent matter. Other common synonyms used for phosphorescent or luminescent matter are fluorescent material, cathodoluminescent material, fluorophor, luminophor, photoluminescent material, etc. They all mean the same thing.

Regarding claim 17, Itoh et al. teaches all the limitations of the claim, but fails to teach wherein the light-emitting target is coated with phosphorescent matter. Tjaden in the analogous art teaches wherein the light-emitting target is coated with phosphorescent matter **(col. 2 lines 43-46)**. Additionally, Tjaden et al. teaches incorporation of such a phosphorescent matter to improve light-emission and pixel creation **(col. 2 lines 43-50)**.

Consequently it would have been obvious to a person having ordinary skill in the art at the time the invention was made to use a phosphorescent matter coating in the

field emission display of Itoh et al., since such a modification would improve light-emission and pixel creation as taught by Tjaden et al.

Claims 18-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hush U.S. Patent 5,663,742 in view of Takemura U.S. Patent 5,666,020.

Regarding claim 18, Hush teaches a video display **(claim 9; col. 1 lines 14-19)**, comprising: a display screen **(field emission display ref. 100)** for showing a video image **(claim 9)**; and an array **(field emissive array ref. 102)** of field emission devices from the video image, wherein the array of field emission devices forming the video image (claim 9), a light-emitting target that radiates when the released electrons strike the light-emitting target **(col. 3 lines 34-40)**, but fails to teach at least one emitter having a coating that releases electrons at a predetermined energy level, the coating is stable in the presence of outgassing. Takemura in the analogous art teaches at least one emitter having a coating that releases electrons at a predetermined energy level, the coating is stable in the presence of outgassing **(col. 5 lines 22-26)**. Additionally, Takemura teaches incorporation of such a coating to improve the reduction in the value of the work function and the improvement of the discharge property of the electron gun **(col. 5 lines 28-30)**.

Consequently it would have been obvious to a person having ordinary skill in the art at the time the invention was made to use a platinum silicide coating in the field emitter of Hush since such a modification would improve the reduction in the value of the work function and the improvement of the discharge property of the electron gun as taught by Takemura.

When you have the structure, you have the function. Also the particular outgasses used with the emitter/coating is intended use language.

Regarding claim 19, Takemura discloses wherein the coating acts to decompose at least a portion of the outgassing **(col. 5 lines 22-26)**. This claim is rejected for the same reasons found in claim 18.

Regarding claim 20, Takemura discloses wherein the coating acts to neutralizes at least one matter in the outgassing **(col. 5 lines 22-26)**. This claim is rejected for the same reasons found in claim 18.

Regarding claim 21, Takemura discloses wherein the coating acts to bring about heterogeneous catalysis in the presence of outgassing **(col. 5 lines 22-26)**. This claim is rejected for the same reasons found in claim 18.

Regarding claim 22, Hush teaches the video display of claim 18, wherein the video display is a camcorder viewfinder **(col. 1 lines 14-15)**.

Claims 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hush U.S. Patent 5,663,742 in view of Takemura U.S. Patent 5,666,020 and Haase et al. U.S. Patent 5,684,358.

Regarding claim 23, Hush and Takemura teach all the limitations of claim 23, but fails to teach wherein the video display is a flat-panel television display. Haase et al. in the analogous art teaches wherein the video display is a flat-panel television display **(col. 1 lines 9-10 and 19)**. Additionally, Haase et al. teaches incorporation of such a flat-panel television display to improve the vacuum fluorescent display by increasing the number of uses for the display **(col. 1 lines 9-23 and 24-38; col. 2 lines 13-22).**

Consequently it would have been obvious to a person having ordinary skill in the art at the time the invention was made to use flat-panel television display in the video display of Hush and Takemura, since such a modification would improve the vacuum fluorescent display by increasing the number of uses for the display as taught by Haase.

Regarding claim 24, Hush and Takemura teach all the limitations of claim 23, but fails to teach wherein the video display is a display on a personal appliance. Haase et al. in the analogous art teaches wherein the video display is a display on a personal appliance **(mobile telephone col. 1 lines 16-19)**. Additionally, Haase et al. teaches incorporation of such a display on a personal appliance to improve the vacuum fluorescent display by increasing the number of uses for the display **(col. 1 lines 9-23 and 24-38; col. 2 lines 13-22).**

Consequently it would have been obvious to a person having ordinary skill in the art at the time the invention was made to use a display on a personal appliance in the video display of Hush and Takemura, since such a modification would improve the vacuum fluorescent display by increasing the number of uses for the display as taught by Haase.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hu U.S. Patent 6,328,620 discloses an Apparatus and Method for Forming Cold-Cathode Filed Emission Displays. The Hu reference can clearly be used to reject nearly all of the claims in this application under 102(e). Nakamoto et al.

U.S. Patent 6,417,606 discloses a Field Emission Cold-Cathode Device. The Nakamoto reference could also be used to reject a significant amount of claims in this particular case under 102(e). Liebeskind et al. U.S. Patent Application Publication 2003/0141802 discloses an Electronic Device Having a Getter Used as a Circuit Element. Liebeskind et al. Discloses that One of the major problems with vacuum packing of electronic devices in the continuous outgassing of hydrogen, water vapor, **carbon monoxide**, and other components found in the ambient air from the internal components of the electronic device and discloses the FEDs are electronic devices see paragraphs 1 and 2. Therefore organic outgassing is inherent in FEDs. Pepi et al. U.S. Patent 5876,260 discloses a Method for Assembling a Flat Display Screen. Pepi et al. Discloses that organic gases such as carbon dioxide, carbon monoxide and methane are all part of the ambient air and get adsorbed into the flat panel display screen **(col. 2 lines 43-50)**.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Glenn Zimmerman whose telephone number is (571) 272-2466. The examiner can normally be reached on M-W 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh D Patel can be reached on (571) 272-2457. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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